Response to Office Action dated 06/30/05   Serial Number: 10/601,893
Title: Two Band Imaging System   Inventors: Hillenbrand et al.
Date Filed: 06/19/03   Attorney Docket No.: NC 84509

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-11: (canceled)

Claim 12. (Amended) A two band imaging system, the two band system having an

optical axis, the two band imaging system comprising:

    a. a mounting assembly;

    b. two infrared focal plane array detectors, the two infrared focal plane array

        detectors mounted on the mounting assembly, the two infrared focal plane

        array detectors are substantially perpendicular to each other;

    c. two filters of known band-pass, each filter placed in front of a corresponding

        infrared focal plane array detector, one of the two filters of known band-pass

        is a short wave infrared filter, while the other filter of known band-pass is a

        midwave infrared filter;

    d. a dichroic beam splitter, the dichroic beam splitter disposed within the

        system at an angle to the optical axis such that light entering the system is

        split and is simultaneously directed to each of the two infrared focal plane

        array detectors;

    e. a Dewar vessel, the two infrared focal plane array detectors, the two filters of

        known band-pass and the dichroic beam splitter disposed within the Dewar

        vessel;

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f. an image processor for providing real time absolute radiance imagery, the image processor simultaneously converting the light entering the two infrared focal plane array detectors into an absolute radiance image; and,

g. an optic plate for correcting optical distortion of light disposed within the system, ~~The two band imaging system of claim 11, wherein between~~ the optic plate is disposed between the midwave infrared filter and the dichroic beam splitter.

Claim 13. (Original) A two band imaging system, the two band imaging system having an optical axis, the two band imaging system comprising:

a. a mounting assembly, the mounting assembly being a single monolithic mounting assembly;

b. two infrared focal plane array detectors, the two infrared focal plane array detectors mounted on the mounting assembly wherein the two infrared focal plane array detectors are substantially perpendicular to each other;

c. two filters of known band-pass, each filter placed in front of a corresponding infrared focal plane array detector, one of the two filters of known band-pass is a short wave infrared filter, while the other filter of known band-pass is a midwave infrared filter;

d. a dichroic beam splitter, the dichroic beam splitter disposed within the system at an angle to the optical axis such that light entering the system is split and is simultaneously directed to each of the two infrared focal plane array detectors;

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     e.   an optic plate for correcting optical distortion, the optic plate disposed between the midwave infrared filter and the dichroic beam splitter;

     f.   a Dewar vessel, the two infrared focal plane array detectors, the two filters of known band-pass, the dichroic beam splitter, and the optic plate disposed within the Dewar vessel; and

     g.   an image processor for providing real-time absolute radiance imagery, the image processor simultaneously converting the light entering the two infrared focal plane array detectors into an absolute radiance image.

Claim 14. (Original) The two band imaging system of claim 13, wherein the dichroic beam splitter disposed within the system at about a 45 degree angle to the optical axis.

Claim 15. (Original) The two band imaging system of claim 14, wherein the two infrared focal plane array detectors are selected from the group consisting of indium antimonide type detectors and cadmium telluride type detectors.

Claim 16. (Original) The two band imaging system of claim 15, wherein the image processor utilizes an algorithm that relies on imaging system characteristics alone.

Claim 17. (Original) The two band imaging system of claim 16, wherein the image processor utilizes the following equations to create real time absolute radiance imagery:

(a) $S(Total) - (S(FPA) + S(n))) * R + L(n) - L(Optics) = L(Scene)$; and

(b) $(S(Total) - (S(FPA) + S(n))) * R + L(n) - L(Scene) = L(Optics)$.

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Claim 18. (Original) The two band imaging system of claim 17, wherein the imaging system further comprising an imaging optic for passing light into the imaging system, the Dewar vessel disposed behind the imaging optic.

Claim 19. (Original) The two band imaging system of claim 18, wherein the optic plate is a cylindrical optic plate.

Claim 20. (Original) The two band imaging system of claim 18, wherein the optic plate is a flat tilt plate.